Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An optical pickup apparatus comprising:

a light source module having a first light source and a second light source which emit light rays of different wavelengths to record/reproduce data on/from recording media having different standards, the first light source emitting light rays for a [[~~DVD~~]]first recording medium and the second light source emitting light rays for a [[~~CD~~]]second recording medium, the light source module operating a selected one of the first and the second light sources;

an object lens arranged to focus light rays emitted from the selected light source to form an optical spot on a predetermined position of a recording surface of a recording medium;

a light splitting element arranged to transmit a part of the light rays emitted from the selected light source and reflect the remaining light rays to oppose to the object lens, the light splitting element transmitting all of the light rays reflected from the recording medium;

a collimating lens arranged on a light path formed between the light splitting element and the object lens to convert the light rays into parallel light rays;

a hologram module arranged on a light path between the collimating lens and the object lens to split a light which is incident to the recording medium, into a plurality of beams; and

a photo-detector having a [[~~DVD~~]sensor for the first/second recording mediumand ~~a CD sensor~~ for receiving light rays that are reflected from the recording medium and passed through the hologram module and detecting an information signal and an error signal.

2. (Previously Presented) The optical pickup apparatus as claimed in claim 1, further comprising:

a monitor photo-detector arranged to receive light rays that pass through the light splitting element and monitor the light rays to adjust a magnitude of the light emitted from the first and the second light sources; and

a sensor lens arranged on a front surface of the photo-detector for adjusting the light rays reflected from the recording medium to be incident on the photo-detector with a predetermined size.

3. (Previously Presented) The optical pickup apparatus as claimed in claim 2, wherein the hologram module comprises:

a polarized light hologram formed in a circular pattern to split only predetermined polarized light rays; and

a 1/4-wavelength plate arranged on a surface of the polarized light hologram opposite to the object lens for turning a phase of the polarized light rays by 90°.

4. (Previously Presented) The optical pickup apparatus as claimed in claim 3, wherein the polarized light hologram is divided into a first hologram and a second hologram which are operated in response to the light rays emitted from the first light source, the first and the second holograms being formed on the same plane in a semicircular shape and located one on the other, the first and the second holograms diffracting the light by a predetermined angle with respect to an optical axis of the light to thereby generate zero-order and ±1 order beams.

5. (Previously Presented) The optical pickup apparatus as claimed in claim 4, wherein the zero-order beam generated by the first and the second holograms is focused by the object lens on a predetermined position conforming to the standard of a DVD-ROM.

6. (Previously Presented) The optical pickup apparatus as claimed in claim 4, wherein the -1 order beam generated by the first hologram and the +1 order beam generated by the second hologram are respectively focused by the object lens on predetermined positions conforming to the standard of a DVD-R/DVD-RW.

7. (Previously Presented) The optical pickup apparatus as claimed in claim 4, wherein the +1 order beam generated by the first hologram and the -1 order beam generated by the second hologram are respectively focused by the object lens on predetermined positions conforming to the standard of a DVD-RAM.

8. (Currently Amended) The optical pickup apparatus as claimed in claim 4, wherein the photo-detector comprises 5 DVD sensors which correspond to the ~~respective five split~~ plurality of split beams and are arranged apart from one another by a predetermined distance.

9. (Currently Amended) The optical pickup apparatus as claimed in claim 8, wherein, when a DVD-ROM is used as the first recording medium, a focus error signal and a tracking error signal generated at the photo-detector by an astigmatism method and by a DPD (Differential Phase Detection) method, respectively, are calculated with respect to a signal of the zero-order beam which is reflected from the DVD-ROM and received at an associated [[DVD]]first recording medium sensor.

10. (Currently Amended) The optical pickup apparatus as claimed in claim 8, wherein, when a DVD-RAM is used as the first recording medium, a focus error signal generated at the photo-detector by a DAD method and a tracking error signal generated at the photo-detector by one of the-DPP and the-PP (Push Pull) methods are calculated with respect to a signal of the zero-order beam reflected from the DVD-RAM, a signal of the +1 order beam generated by the first hologram, and a signal of the -1 order beam generated by the second hologram, which are received at associated [[DVD]]first recording medium sensors.

11. (Currently Amended) The optical pickup apparatus as claimed in claim 8, wherein, when a DVD-R/DVD-RW is used as the first recording medium, a focus error signal and a tracking error signal generated at the photo-detector by an astigmatism method and a DPP method are calculated with respect to a signal of the zero-order beam reflected from the DVD-R/DVD- RW, a signal of the -1 order beam generated by the first hologram, and a signal of the +1 order beam generated by the second hologram, which are received at associated [[DVD]]first recording medium sensors.

12. (Currently Amended) The optical pickup apparatus as claimed in claim 8, wherein, when a CD is used as the second recording medium, a focus error signal and tracking error signal generated by the photo-detector by an astigmatism method and a PP method are calculated with respect to a signal of light emitted the second light source which is reflected from the CD and received at the [[CD]]second recording medium sensor.

13. (Original) An optical pickup device for use in a recording/reproducing apparatus, comprising:

a first light source to emit light rays having a first wavelength;

a second light source to emit light rays having a second wavelength;

an object lens arranged to focus light rays emitted from a selected light source from one of the first and second light sources to form an optical spot on a predetermined position of a recording surface of a recording medium;

a light splitting element arranged to transmit a part of the light rays emitted from the selected light source, while reflecting remaining light rays emitted from the selected light source to oppose to the object lens, and transmitting all of the light rays reflected from the recording medium;

a collimating lens disposed between the light splitting element and the object lens to convert the light rays into parallel light rays;

a hologram module disposed between the collimating lens and the object lens to split a light which is incident to the recording medium, into a plurality of beams; and

a photo-detector having a plurality of sensors to receive light rays emitted from the selected light source that are reflected from the recording medium and passed through the hologram module, and to detect an information signal and an error signal.

14. (Previously Presented) The optical pickup apparatus as claimed in claim 13, wherein the first and second light sources are packaged in a single module and originated from a dual wavelength laser diode which generates light rays having one of a wavelength of 650 nm for recording/reproducing data on/from a DVD-family optical disk and a wavelength of 780 nm for recording/reproducing data on/from a CD-family optical disk.

15. (Previously Presented) The optical pickup apparatus as claimed in claim 14, further comprising:

a monitor photo-detector arranged to receive light rays that pass through the light splitting element and monitor the light rays to adjust a magnitude of the light rays emitted from the selected light source; and

a sensor lens arranged on a front surface of the photo-detector for adjusting the light rays reflected from the recording medium to be incident on the photo-detector with a predetermined size.

16. (Previously Presented) The optical pickup apparatus as claimed in claim 14, wherein the hologram module comprises:

a polarized light hologram formed in a circular pattern to split only predetermined polarized light rays; and

a 1/4-wavelength plate arranged on a surface of the polarized light hologram opposite to the object lens for turning a phase of the polarized light rays by 90°

17. (Previously Presented) The optical pickup apparatus as claimed in claim 16, wherein the polarized light hologram is divided into a first hologram and a second hologram which are operated in response to the light rays emitted from the first light source, the first and the second holograms being formed on the same plane in a semicircular shape and located one on the other, the first and the second holograms diffracting the light by a predetermined angle with respect to an optical axis of the light to thereby generate zero-order and ±1 order beams.

18. (Previously Presented) The optical pickup apparatus as claimed in claim 17, wherein the zero-order beam generated by the first and the second holograms is focused by the object lens on a predetermined position conforming to the standard of a DVD-ROM.

19. (Previously Presented) The optical pickup apparatus as claimed in claim 17, wherein the -1 order beam generated by the first hologram and the +1 order beam generated by the second hologram are respectively focused by the object lens on predetermined positions conforming to the standard of a DVD-R/DVD-RW.

20. (Previously Presented) The optical pickup apparatus as claimed in claim 17, wherein the +1 order beam generated by the first hologram and the -1 order beam generated by the second hologram are respectively focused by the object lens on predetermined positions conforming to the standard of a DVD-RAM.

21. (Currently Amended) The optical pickup apparatus as claimed in claim 14, wherein the photo-detector comprises five DVD sensors which correspond to the ~~respective five~~plurality of split beams and are arranged apart from one another by a predetermined distance to receive light

rays that are reflected from the DVD-family optical disk, and a single CD sensor to receive light rays that are reflected from the CD-family optical disk.

22. (Previously Presented) The optical pickup apparatus as claimed in claim 18, wherein, when a DVD-ROM is used as the recording medium, a focus error signal and a tracking error signal generated at the photo-detector by an astigmatism method and by a DPD (Differential Phase Detection) method, respectively, are calculated with respect to a signal of the zero-order beam which is reflected from the DVD-ROM and received at an associated DVD sensor.

23. (Previously Presented) The optical pickup apparatus as claimed in claim 20, wherein, when a DVD-RAM is used as the recording medium, a focus error signal generated at the photo-detector by a DAD method and a tracking error signal generated at the photo-detector by one of DPP and PP (Push Pull) methods are calculated with respect to a signal of the zero-order beam reflected from the DVD-RAM, a signal of the +1 order beam generated by the first hologram, and a signal of the -1 order beam generated by the second hologram, which are received at associated DVD sensors.

~~23~~24. (Currently Amended) The optical pickup apparatus as claimed in claim 19, wherein, when a DVD-R/DVD-RW is used as the recording medium, a focus error signal and a tracking error signal generated at the photo-detector by an astigmatism method and a DPP method are calculated with respect to a signal of the zero-order beam reflected from the DVD-R/DVD- RW, a signal of the -1 order beam generated by the first hologram, and a signal of the +1 order beam generated by the second hologram, which are received at associated DVD sensors.

~~24~~25. (Currently Amended) The optical pickup apparatus as claimed in claim 21, wherein, when a CD is used as the recording medium, a focus error signal and tracking error signal generated by the photo-detector by an astigmatism method and a PP method are calculated with respect to a signal of light emitted the second light source which is reflected from the CD and received at the CD sensor.

~~25~~26. (Currently Amended) An optical pickup device for use in a recording/reproducing apparatus, comprising:

a dual wavelength laser diode arranged to emit light rays having a selected one of a first wavelength for recording/reproducing data on/from a DVD-family optical disk and a second wavelength for recording/reproducing data on/from a CD-family optical disk;

an object lens arranged to focus light rays of a selected wavelength to form an optical spot on a predetermined position of a recording surface of an optical disk;

a light splitting element arranged to transmit a part of the light rays emitted from the dual wavelength laser diode, while reflecting remaining light rays to oppose to the object lens, and transmitting all of the light rays reflected from the optical disk;

a collimating lens disposed between the light splitting element and the object lens to convert the light rays into parallel light rays;

a hologram module disposed between the collimating lens and the object lens to split a light which is incident to the recording medium, into a plurality of beams; and

a photo-detector arranged to receive light rays emitted from the dual wavelength laser diode that are reflected from the optical disk and passed through the hologram module, and to detect an information signal and an error signal.

~~26~~27. (Currently Amended) The optical pickup apparatus as claimed in claim ~~25~~26, wherein the hologram module comprises:

a polarized light hologram formed in a circular pattern to split only predetermined polarized light rays; and

a 1/4-wavelength plate arranged on a surface of the polarized light hologram opposite to the object lens for turning a phase of the polarized light rays by 90°

~~27~~28. (Previously Presented) The optical pickup apparatus as claimed in claim 2627, wherein the polarized light hologram is divided into a first hologram and a second hologram which are operated in response to the light rays emitted from the dual wavelength laser diode, the first and the second holograms being formed on the same plane in a semicircular shape and diffracting the light by a predetermined angle with respect to an optical axis of the light to thereby generate zero-order and ±1 order beams.

~~28~~29. (Previously Presented) The optical pickup apparatus as claimed in claim ~~27~~28, wherein:

the zero-order beam generated by the first and the second holograms is focused by the object lens on a predetermined position conforming to the standard of a DVD-ROM;

the -1 order beam generated by the first hologram and the +1 order beam generated by the second hologram are respectively focused by the object lens on predetermined positions conforming to the standard of a DVD-R/DVD-RW; and

the +1 order beam generated by the first hologram and the -1 order beam generated by the second hologram are respectively focused by the object lens on predetermined positions conforming to the standard of a DVD-RAM.

~~29~~30. (Currently Amended) The optical pickup apparatus as claimed in claim ~~25~~26, wherein the photo-detector comprises five (5) DVD sensors which correspond to the ~~respective five~~plurality of split beams and are arranged apart from one another by a predetermined distance to receive light rays that are reflected from the DVD-family optical disk, and a single CD sensor to receive light rays that are reflected from the CD-family optical disk.